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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/856,803	05/25/2001	Stephen B. Liggett	MWH-0029US	3706

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GENAISSANCE PHARMACEUTICALS
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EXAMINER	
MYERS, CARLA J	

ART UNIT	PAPER NUMBER
1634	11

DATE MAILED: 09/20/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/856,803	Applicant(s) LIGGETT, STEPHEN B.	
	Examiner Carla Myers	Art Unit 1634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21,23 and 26-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) _____ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *1-21,23 and 26-29* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

1. Restriction to one of the following inventions is required under 35 U.S.C. § 121 and 372:

I. Claims 1-8 and 11, drawn to a method of genotyping the β_2AR gene by determining the identity of a nucleotide in the 5' leader cistron of the β_2AR gene.

II. Claims 9-10 and 12, drawn to a method for detecting a 5' β_2AR 5' LC peptide variant.

III. Claims 13-15, drawn to allele specific probes.

IV. Claims 16-17, drawn to methods for haplotyping by detecting the presence of 2 or more polymorphisms.

V. Claims 18, 28 and 29, drawn to methods for predicting a genotype in a coding sequence by detecting a polymorphism in the 5' leader cistron of the β_2AR gene.

VI. Claims 19 and 20, drawn to a method for determining the frequency of a genotype of the β_2AR gene in a population.

VII. Claims 19 and 20, drawn to a method for determining the frequency of a haplotype of the β_2AR gene in a population.

VIII. Claims 21 and 23, drawn to a method for determining an association between a β_2AR gene polymorphism and a trait.

IX. Claims 26 and 27, drawn to a method of predicting a patients response to an agonist.

2. The inventions listed above do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical feature for the following reasons:

The first claimed invention, claims 1-8 and 11, lacks unity because the invention represents methods which do not provide a special technical feature over the art. Claims 1-8 and 11 are broadly drawn to methods for genotyping the β_2AR gene by sequencing the 5' cistron leader of the β_2AR gene. Since the 5' cistron leader of the β_2AR gene was known in the art at the time the invention was made, as was methods of sequencing the 5' cistron leader sequence (See: Edmorine et al, Proceedings of the National Academy of Science, USA (1987) 84: 6995-6999),

there is no special technical feature linking the recited groups, as would be necessary to fulfill the requirement for unity of invention.

Each of the claimed methods is patentably distinct from the other because they involve different method steps and have different objectives. The methods of invention I require steps of determining the sequence in the 5' cistron leader of the β_2AR gene to achieve the objective of genotyping the β_2AR gene. The methods of invention II require analyzing the amino acid sequence of the β_2AR gene 5' cistron leader in order to accomplish the objective of detecting a β_2AR variant peptide. The methods of invention IV require identifying the nucleotide sequence at 2 or more positions in the β_2AR gene in order to achieve the objective of haplotying the β_2AR gene. The methods of invention V require predicting a genotype in the coding sequence of the β_2AR gene by detecting a genotype of the 5' leader cistron. Invention VI involves determining the frequency of a genotype of the β_2AR gene in the population. Invention VII involves analyzing a population to determine the frequency of a β_2AR gene haplotype. Invention VIII involves comparing the frequency of a β_2AR gene polymorphism in a reference population and in a population exhibiting a trait in order to identify an association between the β_2AR gene polymorphism and the trait. Invention IX involves detecting a genotype in the β_2AR gene 5' leader cistron in order to predict a patients response to an agonist of β_2AR. Further, each of the claimed methods are distinct over the allele specific probes because the allele specific probes can be used in patentably distinct methods, such as methods for detecting the β_2AR gene.

3.

Sequence and Polymorphism Election

In addition, Inventions I and III detailed above read on patentably distinct inventions drawn to nucleic acids comprising patentably distinct sequences. The nucleotide sequences are patentably distinct because they are structurally and functionally unrelated sequences, and a further restriction is applied to each invention. A search of one nucleotide sequence would not lead one of skill in the art to each of the other nucleotide sequences and thereby distinct searches

are required for each of the nucleotide sequence and the searches are not coextensive. **In response to the restriction requirement, Applicant must further elect a single polynucleotide selected from the group consisting of SEQ ID NO: 5-10.**

It is noted that nucleotide sequences encoding different proteins and/or having distinct nucleotide sequences are structurally distinct chemical compounds and are unrelated to one another. These sequences are thus deemed to constitute independent and distinct inventions. Absent evidence to the contrary, each such nucleotide sequence is presumed to represent an independent and distinct invention, subject to a restriction requirement.

Furthermore, Applicants must elect a single polymorphism to be examined. Each alteration in the sequence of the β_2AR gene is unique and unobvious over the other. The haplotypes and genotypes encompassed by these claims are distinct from each other and from the single polymorphisms. For example, a molecule of haplotype 1, comprising a particular combination of polymorphisms, differs chemically, structurally, and functionally from a molecule of haplotype 2 and from a molecule comprising a single polymorphism. The special technical feature of each haplotype or genotype is the combination of polymorphisms contained therein, which feature is lacking from and not shared with each other haplotype or genotype or with, e.g., a molecule comprising any single polymorphism set forth in the claims. Further, a search for references teaching a polymorphism at position -20PS would not lead one of skill in the art to references teaching a polymorphism at position +46PS. **For an elected invention that involves genotyping, Applicant is required to elect one of the polymorphisms selected from the group consisting of -20PS, +46PS, +79PS, +100PS and +491PS. With respect to inventions I and III, the elected polymorphism must correspond to the elected allele specific polynucleotide sequence (SEQ ID NO: 5-10). For an elected invention that involves haplotyping, Applicant is required to elect a single haplotype to be examined.**

Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carla Myers whose telephone number is (703) 308-2199. The examiner can normally be reached on Monday-Thursday from 6:30 AM-5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, W. Gary Jones, can be reached on (703)-308-1152. The fax number for the Technology Center is (703)-305-3014 or (703)-305-4242.

Any inquiry of a general nature or relating to the status of this application should be directed to the receptionist whose telephone number is (703) 308-0196.

Carla Myers

September 12, 2002

CARLA J. MYERS
PRIMARY EXAMINER